

# American Electric Power Summer 2004 Preparedness

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## Presentation to the Indiana Utility Regulatory Commission

April 22, 2004



# AEP Presenters

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## Peak Demand – 2003

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	<b>Date</b>	<b>Hour Ending</b>	<b>Peak Demand MW</b>
<b>AEP System East</b>	Aug. 21	1600	19,688
<b>I &amp;M</b>	Aug. 21	1500	4,223



# Summer 2004 Peak AEP – East System

Summer 2004 – Projected MW			
	June	July	August
Peak Internal Demand	19,363	20,307	19,865
Buckeye Power Load	1,334	1,375	1,375
Committed Off-system Sales	1,160	1,179	1,178
<b>Total Demand</b>	<b>21,857</b>	<b>22,861</b>	<b>22,418</b>

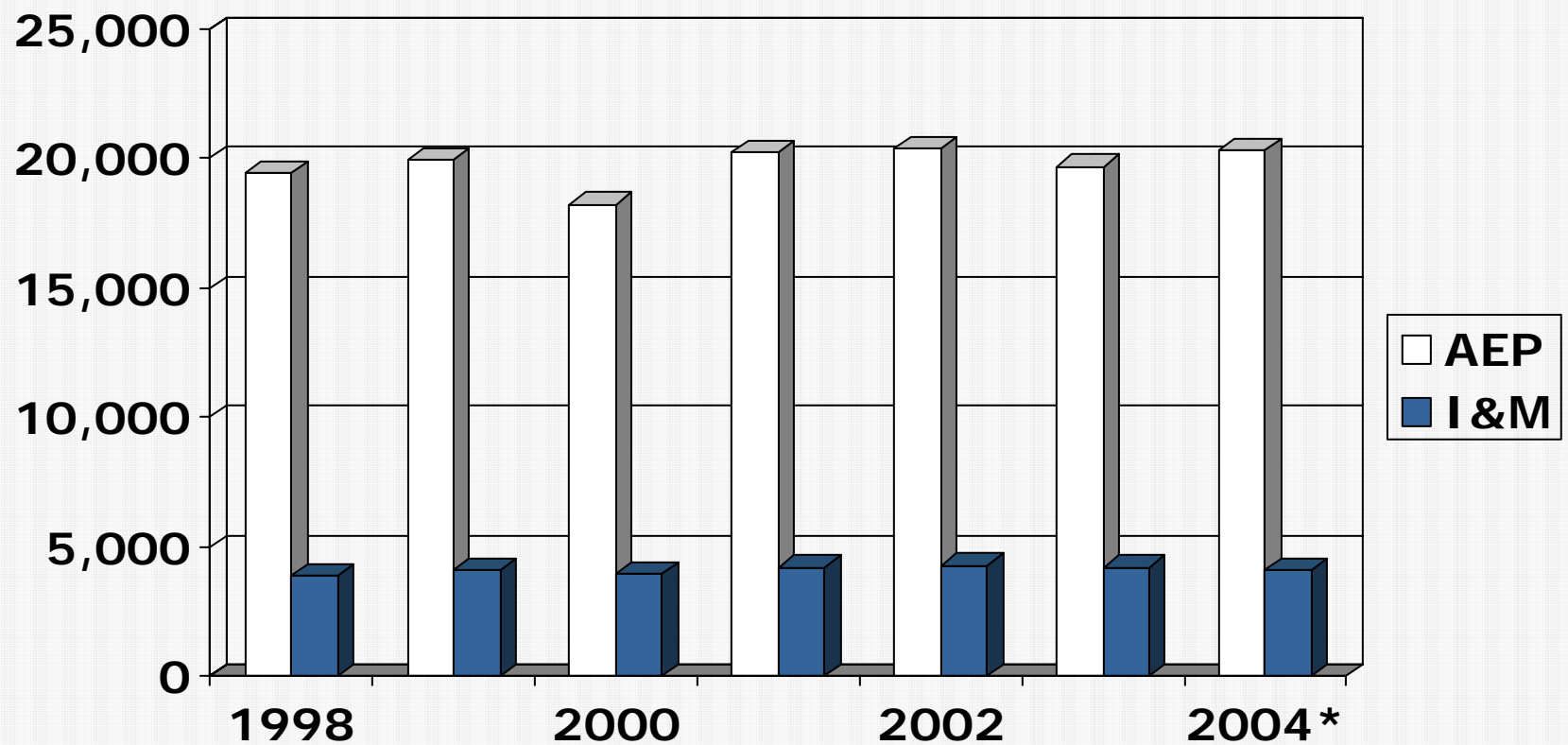


# Summer 2004 Peak Indiana Michigan Power Company

Summer 2004 – Projected MW			
	June	July	August
Peak Internal Demand	4,257	4,115	4,055
Committed Off-System Sales	261	265	263
<b>Total Demand</b>	<b>4,518</b>	<b>4,380</b>	<b>4,318</b>



# AEP-East/I&M Summer Peaks



\* Projected



# AEP-East Resources To Meet Summer Peak

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	June	July	August
Installed Capability	24,532	24,457	24,457
Purchases	1,442	1,413	1,414
<b>Total Capability</b>	<b>25,974</b>	<b>25,870</b>	<b>25,871</b>



# AEP-East Resources Reserve Margins

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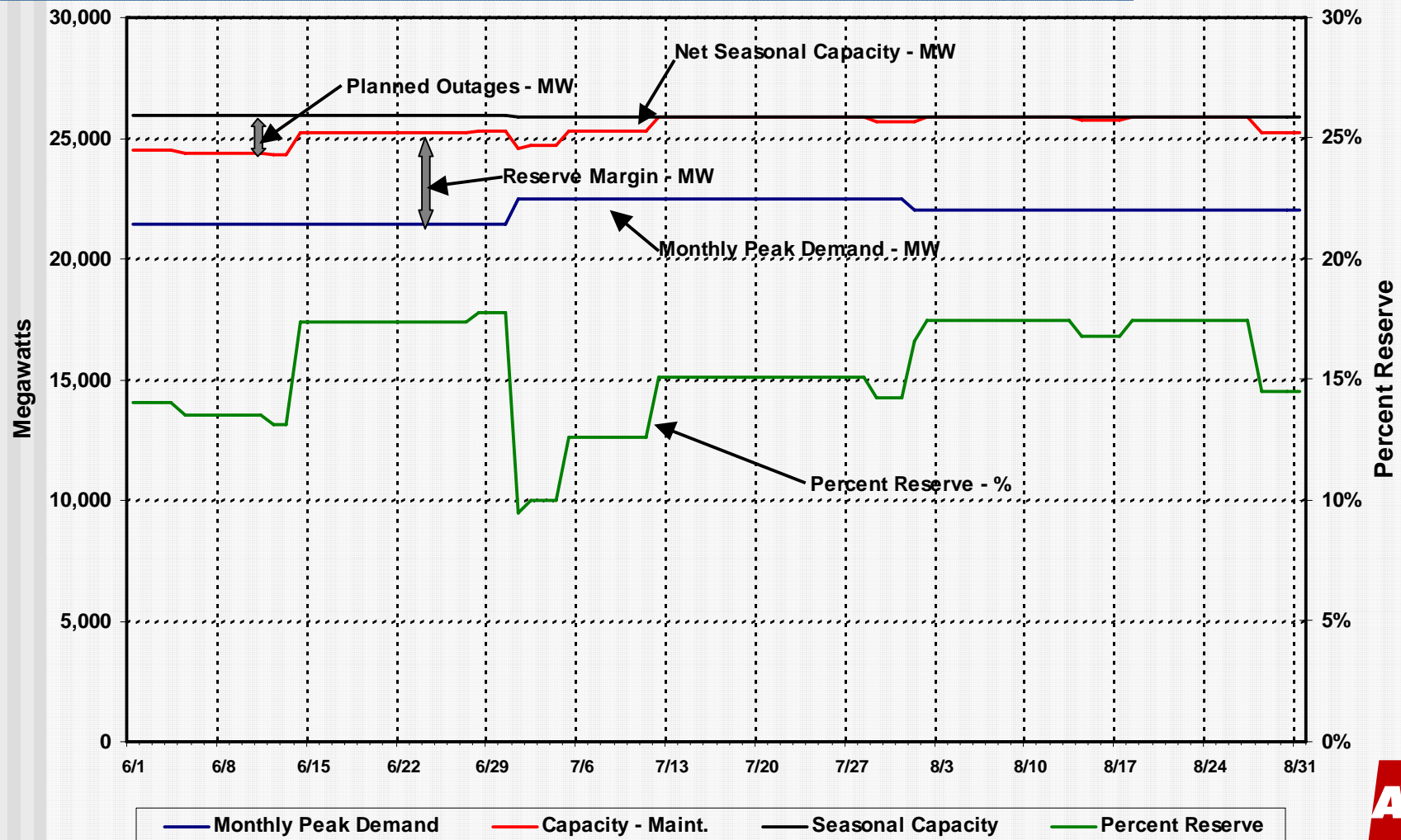
Interruptible Demand = 388 MW

	June	July	August
Total Capability	25,974	25,870	25,871
Total System Demand	21,469	22,473	22,030
Reserve Margins Before Interruptibles (%)	4,117 18.8	3,009 13.2	3,453 15.4
Reserve Margins After Interruptibles (%)	4,505 21.0	3,397 15.1	3,841 17.4

All numbers are MW except where indicated.



# AEP-East System (Summer 2004) Projected Daily Capacity, Demand and Reserve



# AEP-East Purchase Power Agreements

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	June	July	August
OVEC	963	951	951
Summersville	20	15	16
Mone	459	447	447
<b>Total</b>	<b>1,442</b>	<b>1,413</b>	<b>1,414</b>

Other purchases as needed. Could include Indiana merchant plants,  
but amounts/types not known at this time.



# Reducing Peak Demand

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- Time-of-Day Rates
  - 2,600 Indiana customers
  - 16,500 Off-peak water heating systems
  - Off-peak demand forgiveness for large commercial, industrial customers
- Load Management Services
  - Contract Service Interruptible Power tariff
  - Emergency Curtailable Service Service
  - Price Curtailable Service

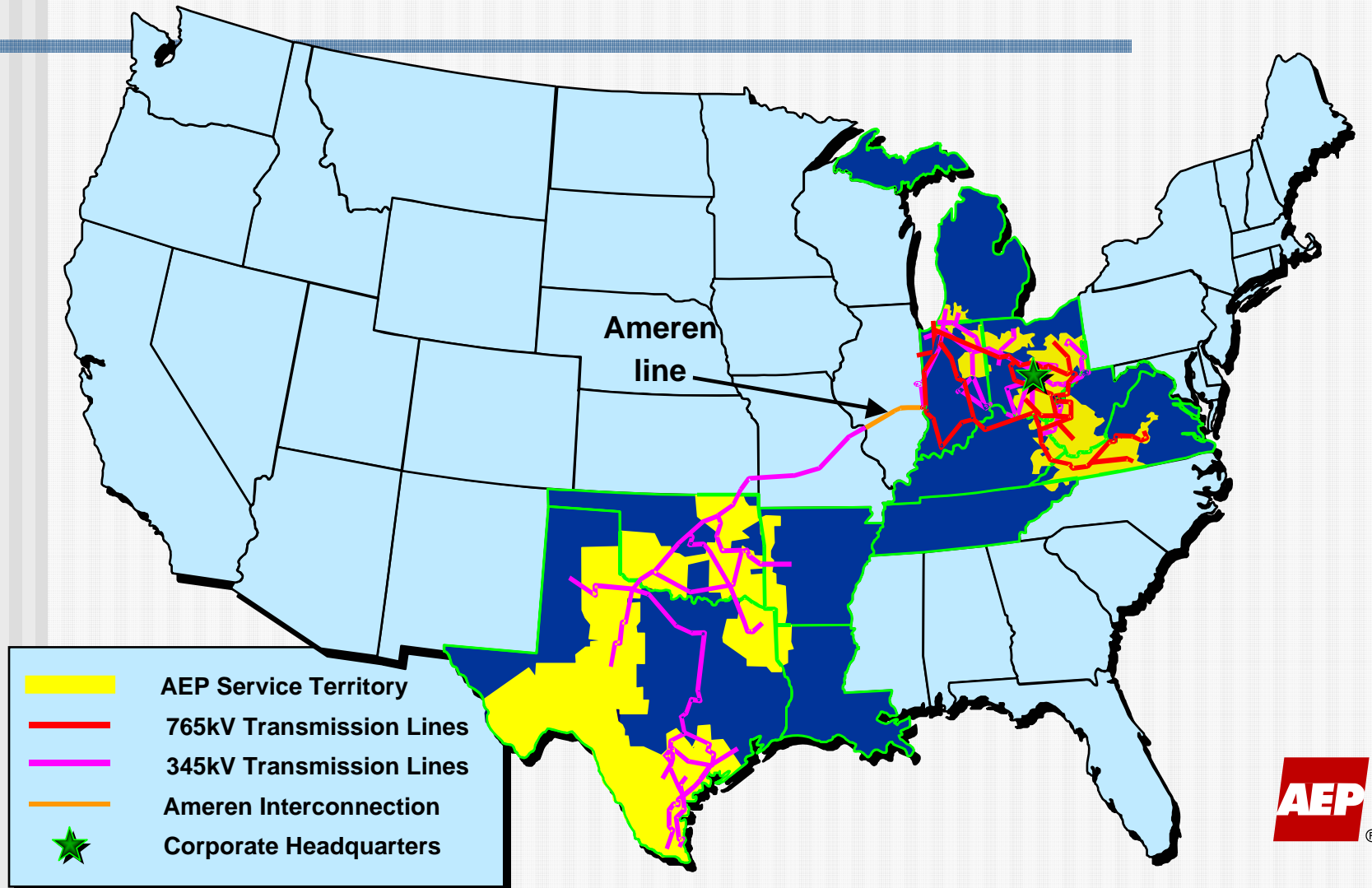


# NOx Compliance Rules

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# Transmission



# Transmission System Improvements

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- System improvements continue this year
  - South Canton (OH) station -- Replace single-phase transformer units over next two years.
  - Construction of 90 mile, 765-kV circuit in WV and VA
  - Outages have minimal impact on Indiana customers
- Interconnections on AEP-East System
  - 25,000-kW of AEP generation
  - 8,000-mw merchant generation (2,000-mw in Indiana)
  - 6,000-mw of additional merchant generation to be connected over next several years (none planned for Indiana)



# Other Improvements

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# Reliability Enhancement Programs

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Asset Management Approach  
Pole Inspection & Treatment  
Recloser Maintenance  
Small Wire  
Underground/Pad mount  
Circuit Inspection  
Animal Mitigation  
Lightning Mitigation  
Network Maintenance



# AEP/Indiana

## Asset Management Approach

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- Review system performance
  - SAIFI
  - CAIDI
  - Maintenance issues
  - Facility loading
- Formulate a plan
  - Targets are set for Asset Maintenance programs
  - Operating issues are identified and mitigation plans formulated
    - ✓ Overloads
    - ✓ Areas with deteriorated facilities
    - ✓ Reliability problems



# Pole Inspection, Treatment & Reinforcement Program

- 10 Year Cycle Program
- Contractor performs inspection & treatment; reports unsafe conditions, defective facilities etc
- Pole condition determined; pole is then treated, treated and reinforced or replaced
- Plan to inspect approximately 30,000 poles
- From the inspections, we anticipate that approximately 440 poles will be reinforced and 315 poles replaced



# Recloser Maintenance Program

- 6 / 8 Year Cycle Program based on hydraulic vs. vacuum interruption
- Phasing in vacuum units as replacements for aging hydraulic units
- Single phase vs. three phase units where appropriate to improve reliability
- We plan to maintain approximately 100 units which completes the cycle
- We inspect all reclosers and capacitors annually



# Small Wire Program

- Overhead and Underground
- Target Reliability Areas
- OH - #2 and smaller
  - Deterioration
  - Excessive splices
  - Secondary included
- UG – Mainly URD Focused
  - Cable Rejuvenation Program using a contractor and a proprietary fluid
  - Cable Replacement is completed for non treatable cable
  - We plan to inject approximately 50,000 feet of cable



# Underground Inspection Program

- 5 Year Cycle Program
- External visual inspection
- Target unsafe conditions and access issues
- Follow up correction of unsatisfactory conditions
- We plan to inspect approximately 8,800 URD padmounts, pedestals and risers



# Overhead Circuit Inspection Program

- 5 Year Cycle Program
- Inspections are to identify and correct deficiencies.
  - Unsafe conditions
  - Vegetation related concerns
  - Blown lightning arresters
  - Broken crossarms/insulators
  - Broken ground wire
  - Excessively leaning poles
  - Slack down guys
  - Equipment oil leaks
  - Excessive conductor splices
- We plan to inspect approximately 2,900 miles



# Animal Mitigation Program

- Proactive installations on all new equipment and during outage restoration efforts
- Electrostatic guards are installed following animal caused outages and also proactively
- Newer equipment comes with animal protection
- Includes animal deterrence for URD risers
- We plan to install 2,100 guards on targeted circuits



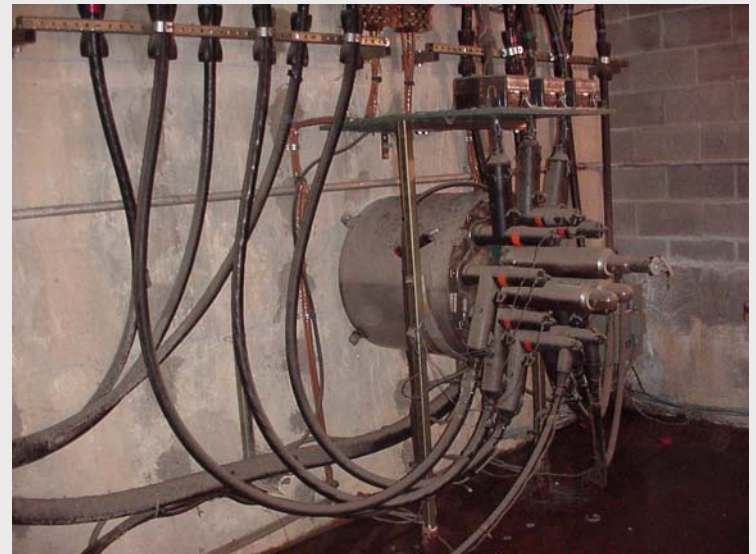
# Lightning Mitigation Program

- New lightning arrester installations target circuits with high number of lightning outages
- Four L/A installations per mile as design criteria
- Heavy-duty L/A now AEP standard
- Installing/checking for good grounds is critical
- We plan to install approximately 1,600 arresters on targeted circuits



# Network Maintenance Program

- Inspections of urban underground network
  - Network Protector
  - Transformer
  - Vaults
  - Manholes
- Trip checks
- Maintenance
  - Network Protector
  - Transformer
  - Correct inspection deficiencies



# AEP's Vegetation Program

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Performance Based vs. Cycle  
Annual Work Plan  
Unscheduled Work  
New Construction  
Storm Restoration



# Vegetation Management

## Performance-Based versus Cycle-Based

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- Cycle-Based
  - Requires circuits to be maintained on a time continuum without regard to actual performance/reliability.
- Performance-Based
  - A more efficient and flexible process allowing the Company to address circuits based on a combination of time elapsed since a circuit's last maintenance and reliability issues.
  - Allocates resources to circuits or circuit segments as tree conditions and circuit performance warrant.



# Vegetation Management

## Annual Vegetation Work Plan

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- Prioritization of Circuits
  - Time elapsed
  - Vegetative conditions (Potential tree related outages)
  - Tree related reliability performance
  - Criticality (e.g. hospitals, public services, etc.)
  - Customer complaints
- Removing/pruning trees off of ROW
  - AEP tries to balance customers' desires with the need for more extensive pruning and/or removal to provide longer periods of sustainable ROW clearance
- Herbicide applications
- Reclaiming overgrown ROWs
- Removing overhang on trees when limb structure is not sufficient to support load in adverse conditions



# Vegetation Management

## Beyond Annual Vegetation Work Plan

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- Unscheduled Work
  - Includes reactive work that addresses local concerns and ongoing customer or community complaints
- New Construction
  - Clear ROW for new service and system improvement projects
- Storm Restoration
  - In response to tornadoes, straight line winds, ice, thunder storms, etc.



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# Questions?

